

Contribution to the knowledge of Afrotropical Rutelinae (Coleoptera: Scarabaeoidea, Melolonthidae)

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Summary

Nine new species of Afrotropical Rutelinae are described: *Anomala rufoides* n. sp. (Tanzania), *Anomala murphyi* n. sp. (Malawi), *Popillia smaragdinoidea* n. sp. (Republic of Congo), *Adoretus francoisi* n. sp. & *Adoretus mickaeli* n. sp. (Zambia), *Adoretus goergeni* n. sp. (Ivory Coast, Benin and Nigeria), *Adoretus morettoii* n. sp. (Burkina Faso), *Adoretus genieri* n. sp. (Senegal) and *Adoretus wernerii* n. sp. (Tanzania) and compared to closely related species. New synonymies are proposed: *Adoretus excisiceps* Frey, 1973 = *Adoretus nasutus* Fahraeus in Boheman, 1857 and *Adoretus maculatus* Benderitter, 1924 = *Adoretus adustus* Ohaus, 1913. The status of good species is restored for *Adoretus picinus* Fahraeus in Boheman, 1857. A male lectotype for *Anomala rufa* Kolbe, 1897, *Popillia smaragdina* Kraatz, 1892, *Adoretus nasutus* Fahraeus in Boheman, 1857 and *Lepadoretus diversicolor* Ohaus, 1914 are designated. Male genitalia illustrations and photographs of habitus are provided.

Keywords: Rutelids, *Adoretini*, *Anomalini*, Africa.

Résumé

Neuf nouvelles espèces afrotropicales de Rutelinae sont décrites: *Anomala rufoides* n. sp. (Tanzanie), *Anomala murphyi* n. sp. (Malawi), *Popillia smaragdinoidea* n. sp. (République du Congo), *Adoretus francoisi* n. sp. et *Adoretus mickaeli* n. sp. (Zambie), *Adoretus goergeni* n. sp. (Côte d'Ivoire, Bénin et Nigeria), *Adoretus morettoii* n. sp. (Burkina Faso), *Adoretus genieri* n. sp. (Sénégal) et *Adoretus wernerii* n. sp. (Tanzanie) et sont comparées aux espèces proches. Deux nouvelles synonymies sont proposées: *Adoretus excisiceps* Frey, 1973 = *Adoretus nasutus* Fahraeus in Boheman, 1857 et *Adoretus maculatus* Benderitter, 1924 = *Adoretus adustus* Ohaus, 1913. *Adoretus picinus* Fahraeus in Boheman, 1857 est réhabilité. Un lectotype mâle pour *Anomala rufa* Kolbe, 1897, *Popillia smaragdina* Kraatz, 1892, *Adoretus nasutus* Fahraeus in Boheman, 1857 et *Lepadoretus diversicolor* Ohaus, 1914 sont désignés. Les genitalia mâles sont figurés ainsi que des photographies d'habitus.

Introduction

This paper is a continuation of a global work on Afrotropical Rutelinae. Nine new species are described in different genera. The main difficulty in the study of Afrotropical Rutelinae is that most of the 600 known species have been described in three genera: *Anomala* Samouelle, 1819, *Popillia* Serville, 1825 and *Adoretus* Laporte, 1840.

Material and method

Measurements:

Body: Length (L): from apex of elytra to middle of anterior margin of pronotum. Breadth (I):

measured at level of half of elytra length.

Pronotum: (normal view): Breadth (IP): measured at maximal value (hind angles for *Popilliina*; lateral angles for *Anomalini* and *Adoretini*); length (LP): measured on median line.

Elytra: Length (LE): from apex of elytron to anterior margin of humeral calli; breadth (IE): elytra taken together, measured at half length.

Lectotypes are designated in order to stabilize the nomenclature in this genus according with Article 74.7.3 of the International Code of Zoological Nomenclature by selecting the only one specimen existing of the whole original series as the sole name-bearing type specimen of this

taxon and as a standard reference for the same taxon (ICZN, 1999).

All male specimens have been dissected (except indications). The wording of each label of typical material is limited by []. For figures, scale = 1 mm.

Acronyms

BMNH: Natural History Museum, London, United Kingdom (M. Barclay).

CMNH: Carnegie Museum of Natural History, Pittsburgh, USA (R. Davidson).

CVDB: Collection Christian Vanderbergh, Les Clayes sous Bois, France.

DEI: Eberswalde Finow Deutsches Entomologisches Institut, Germany (L. Zerche).

FGIC: Collection François Génier, Gatineau (Québec), Canada.

ICZN: International code of zoological nomenclature, London, United Kingdom.

IITA: International Institute of tropical Agriculture, Cotonou, Republic of Benin (G. Goergen).

MRAC: Musée royal de l'Afrique centrale, Tervuren, Belgique (M. De Meyer).

MCCI: Museo Civico di Storia Naturale, Carmagnola, Italy. (G. Curletti).

MNHUB: Zoologisches Museum, Humboldt Universität, Berlin, Germany (J. Willers).

NHMB: Musée d'Histoire naturelle, Bâle, Suisse (I. Zürcher-Pfander).

NHRS: Swedich Museum of Natural History, Stockholm, Sweden (B. Viklund).

OCIS: Observatoire et Conservatoire des insectes du Sénégal (A. Coache).

PCAR: Collection Andreas Reichenbach, Leipzig, Allemagne.

PCDC: Collection Didier Camiade, Sallespisse, France.

PCJJ: Collection Jean-Marie Jadot, Liverdun, France.

PCMF: Collection Mickaël François, Bar Sur Aube, France.

PCPL: Collection Pol Limbourg, Luttre, Belgique.

PCSR: Collection Sébastien Rojkoff, Lyon, France.

PCLG: Collection Philippe Le Gall, Prunay Letemple, France.

RBINS: Royal Belgian Institute of Natural Sciences, Brussels, Belgium (P. Grootaert, W. Dekoninck).

UMO: University Museum Hope Entomological Collections, Oxford, United Kingdom (D. Mann).

Anomala rufoides n. sp.

(Figs 1-2, 35)

Holotype ♂: [Tanzania, near Njombe, 14.XII.1997, Werner & Lizler Leg.] [Coll. I.R.Sc.N.B., Don P.

Limbourg, I. G. 31706] (RBINS)

Paratypes: 1 ♂: [Tanzania, 25km S Babati, Manyara, 06-07.XII.2006, Leg. Werner] (PCPL); 2 ♂*, 1 ♀: [Tanzania, 25km S Babati, Manyara, 06-07.XII.2006, Leg. Werner, I.G. 31.207] (RBINS); 1 ♂: [Tanganyika, T., Msagaa, 35m E. of Singida, X-XII.1935, E. Burt] [Among leaves of *Combretum fischeri*] [press by Imp. Inst. Ent., B.M. 1936-237] (BMNH); 5 ♂, 12 ♀: [D. Ost-Afrika, Iringa] (MNHUB); 1 ♂: [O. Afrika, Manyara-See, XI.93, 0. Neumann S.] [90574] [*rufa* Kolbe] [Manjarei W.] (MNHUB); 1 ♂: [O. Afrika, Manyara-See, XI.93, 0. Neumann S.] [90574] [Manyara W.] (MNHUB).

*one male without aedeagus.

Description:

♂: length: 15.0 – 15.5 mm, breadth: 7.5 – 8.5 mm; ratio LB/IB (n = 9): 1.74 (1.68 – 1.83).

Elongate, convex; reddish-brown except external margin and apex of protibiae; tarsi blackish or brownish.

Clypeus projecting antero-ventrally, sub-rectangular with anterior margin straight, laterally arcuate, excavated and reflexed, punctate like vertex, frons less punctate.

Club of antennae longer than flagellum.

Base of pronotum rounded, laterally subparallel in basal half, convergent in the anterior half, broader than long; ratio LP/IP (n = 9): 0.59 – 0.67, lateral margins sinuate, anterior angles surpassing posterior margin of eyes; all margins carinate, slightly punctured.

Scutellum rounded, punctate.

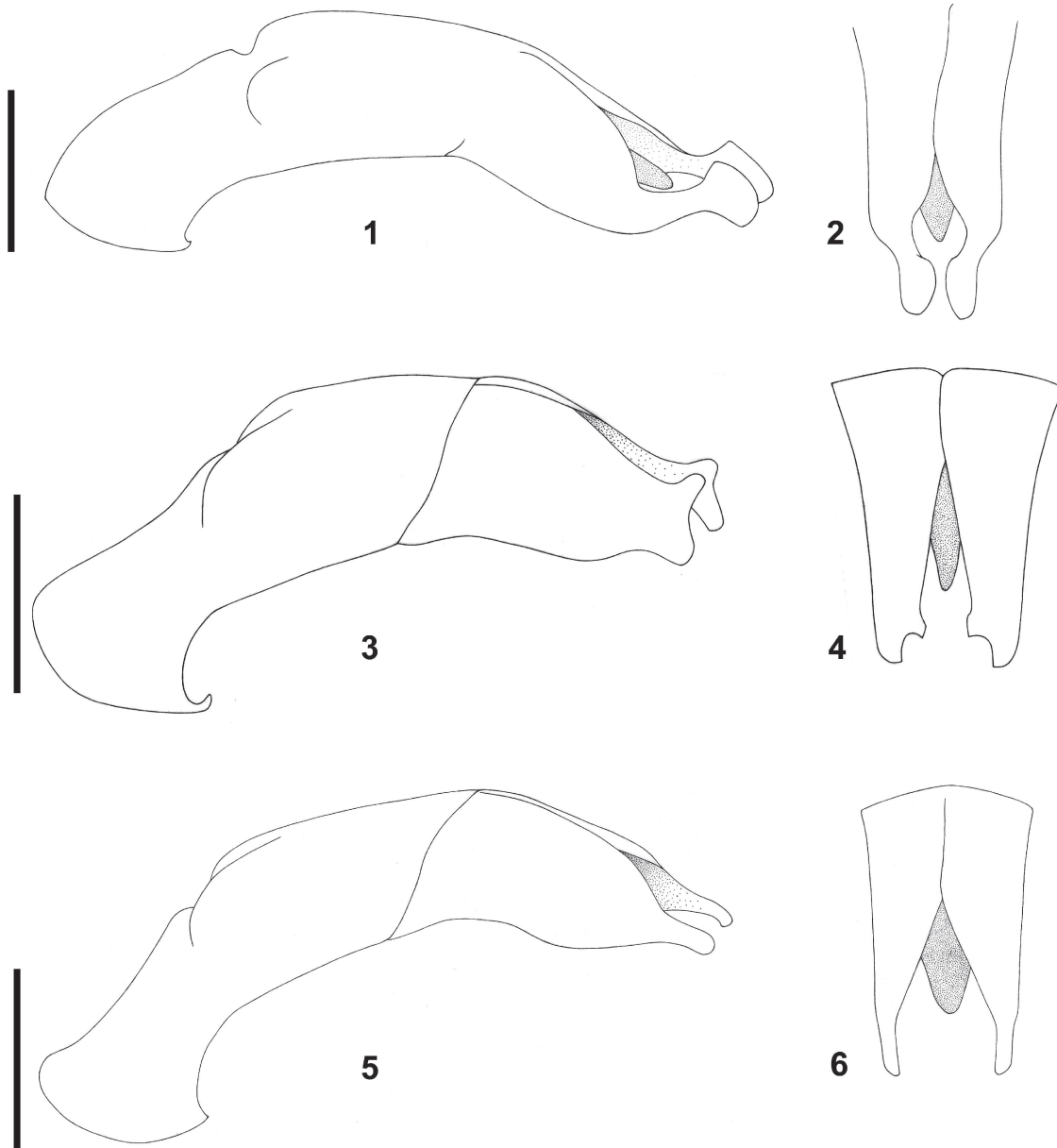
Elytra longer than broad taken together; ratio LE/IE (n = 9): 1.29 – 1.36; epipleura complete; costa slightly elevated, second and fourth strongly punctate; striae well marked, formed by a line of deep rounded points; humeral and apical calli slightly marked.

Pygidium conical, slightly projecting postero-ventrally, transversely striated.

Dorsum with a few erected and isolated setae on antennae, lateral margins of pronotum and elytra; underside with long erected setae rather close on metasternum; isolated and shorter on sternites, margins of pygidium and legs.

Abdomen convex.

Protibiae slender and bidentate, large claw of anterior tarsi bifid, sinuate in middle and not flattened; large claw of median tarsi elongate, incised but not bifid.



Figs 1-2. *Anomala rufoides* holotype: (1) aedeagus, lateral view; (2) parameres, dorsal view.

Figs 3-4. *Anomala murphyi* holotype: (3) aedeagus, lateral view; (4) parameres, dorsal view.

Figs 5-6. *Anomala ustulatipes*: (5) aedeagus, lateral view; (6) parameres, dorsal view.

Aedeagus: apex of parameres spatulate (lateral view); incised after the middle, laterally sinuate before apex in dorsal view; apex of median lobe pointed.

♀: length: 13.5 – 18 mm, breadth: 7.5 – 10 mm.

Differs from ♂ by: tridentate protibia narrower with apical tooth elongate and spatulate, and large claws of median tarsi bifid.

Etymology: *rufa** + suffix *oides*: to be like

*similar to *Anomala rufa* Kolbe, 1897. The species name is in reference to the similarity of the new species to *A. rufa*.

***Anomala murphyi* n. sp.**

(Figs 3-4, 36)

Holotype ♂: [Malawi C., Kasungu District, Chimaliro Forest Reserve (12°27'S/33°33'E), 4200ft, 07.XII.2001, R. J. Murphy] (RBINS).

Description:

♂: length: 13.5 mm, breadth: 6.5 mm; ratio LB/IB (n = 1): 1.87.

Elongate, convex; reddish-brown except meso- and metatibiae, external margin and apex of protibiae and tarsi blackish or brownish.

Clypeus projecting antero-ventrally, sub-rectangular with anterior margin straight, laterally arcuate, excavated and reflexed, punctate like vertex, frons less punctate.

Club of antennae longer than flagellum.

Pronotum broader than long, ratio LP/IP (n = 1): 0.65; base rounded, laterally subparallel from base to angle, convergent in anterior half, lateral margins sinuate, anterior angles surpassing posterior margin of eyes; all margins carinate, slightly punctured.

Scutellum rounded, punctate.

Elytra longer than broad taken together; ratio LE/IE (n = 1): 1.45; epipleura complete; costa slightly elevated, second and fourth strongly punctate; striae well marked, formed by a line of deep rounded points; humeral and apical calli slightly marked.

Pygidium conical, slightly projecting postero-ventrally, transversely striated.

Dorsum with a few erected and isolated setae on antennae, lateral margins of pronotum and elytra; venter with long erected setae rather close on metasternum; isolated and shorter on sternites, margins of pygidium and legs.

Abdomen convex.

Protibiae slender and bidentate, large claw of anterior tarsi bifid, not flattened but sinuate in middle; large claw of median tarsi elongate, slightly incised.

Aedeagus: apex of parameres strongly sinuate; dorsally toothed before apex in lateral view; subtriangular and incised after base in dorsal view; apex of median lobe pointed.

♀: unknown.

Etymology: Dedicated to R. J. Murphy (Mzuzu, Malawi), who collected the holotype.

Anomala ustulatipes Fairmaire, 1887

(Figs 5-6, 37)

= *Anomala rufa* Kolbe, 1897.

Typical material examined:

Holotype ♂ of *Anomala ustulatipes* Fairmaire, 1887: [Museum Paris Zanguebar, Mpouapoua, 1886, Révoil] [Type] [2125 86] [*Anomala ustulatipes* FM.] (MNHN).

Lectotype ♂ of *Anomala rufa* Kolbe, 1897 by present designation: [D. Ost-Afrika, N. Usambara, Mlalo, Holst S.] [Type] [*rufa* Kolbe] [Syntypus *Anomala rufa* Kolbe, 1897, labelled by MNHUB 2011] [Lectotype ♂ *Anomala rufa* Kolbe, 1897 des. Pol Limbourg 2011] (MNHUB).

Paralectotype ♂: [D. Ost-Afrika, N. Usambara, Mlalo, Holst S.] [Type] [69912] [♂] [Syntypus

Anomala rufa Kolbe, 1897, labelled by MNHUB 2011] [Paralectotype ♂ of *Anomala rufa* Kolbe, 1897 det. Pol Limbourg 2011] (MNHUB).

Paralectotype ♀: [D. Ost-Afrika, N. Usambara, Mlalo, Holst S.] [90568] [*Anomala rufa* Kolbe Typ.] [Syntypus *Anomala rufa* Kolbe, 1897, labelled by MNHUB 2011] [Paralectotype ♀ *Anomala rufa* Kolbe, 1897 det. Pol Limbourg 2011] (MNHUB).

2 Paralectotype ♀: [D. Ost-Afrika, N. Usambara, Mlalo, Holst S.] [Type] [♀] [Syntypus *Anomala rufa* Kolbe, 1897, labelled by MNHUB 2011] [Paralectotype ♀ *Anomala rufa* Kolbe, 1897 det. Pol Limbourg 2011] (MNHUB).

2 Paralectotypes ♀: [D. Ost-Afrika, N. Usambara, Mlalo, Holst S.] [Syntypus *Anomala rufa* Kolbe, 1897, labelled by MNHUB 2011] [Paralectotype ♀ *Anomala rufa* Kolbe, 1897 det. Pol Limbourg 2011] (MNHUB).

Additional material examined:

1♂: **Deutsch-Ost Afrika** (MNHUB); 2♀: **Deutsch-Ost Afrika**, Dar Es Salaam (RBINS); 1♂: **Deutsch-Ost Afrika**, Kurio (MNHUB); 1♀: **Deutsch-Ost Afrika**, Mohoro (MNHUB); 1♂, 3♀: **Deutsch-Ost Afrika**, coll. Schramm (RBINS); 1♂: **Deutsch-Ost Afrika**, Mokorro, II.(19)09, Aufluz-Holtz (MNHUB); 1♂, 4♀: **Deutsch-Ost Afrika**, Usambara (RBINS); 1♂: idem (MNHUB); 3♂: Usambara, Neu Bethel, XII.1903 (MNHUB); 1♂: **Deutsch-Ost Afrika**, Usambara, Lutindi (MNHUB); 2♂, 3♀: **Deutsch-Ost Afrika**, Usambara, Hohenfriedebg. (MNHUB); 1♂: **Deutsch-Ost Afrika**, Usambara, H friedebg. (MNHUB); 1♂: **Deutsch-Ost Afrika**, Bagamoyo (MNHUB); 1♂: **Deutsch-Ost Afrika**, Morogoro, XII.(19)06, Leg. Holtz (MNHUB); 2♂: Uluguru, XII.(19)11 (MNHUB); 1♂: **Zimbabwe**, Nyanga N.P.: Rhodes Dam (18°17'S/32°43'E), 05-08.XII.1993, lux, Leg. M. Uhlig (RBINS); 1♀: idem (MNHUB); 1♂: **Zimbabwe** centr., 70km N. of Chivhu, Featherstone env., 22.XI.1998, leg. M. Snizek (PCPL); 2♂, 1♀: **Zimbabwe**, Featherstone env., 22.XI.1998, leg. M. Snizek (RBINS); 1♀: idem (PCPL); 3♂, 1♀: **Zimbabwe**, Harare, 04-05.XI.1989, leg. Pete Cresswell/Oatlands Road « Moorview » (CMNH); 1♀: **Zimbabwe**, 20km S.W. of Harare, 29-31.XII.1988, leg. P. Cresswell/Robert D. Ward collection, donated 1989 (CMNH); 2♀: **Zambia** C., NE Kapiri Mposhi, 40km SW. of Serenje, 30.XI.2004, leg. M. Snizek (PCPL); 1♂: **Zambia**, Mfwanta, Central Prov., 30.XI.2008, Leg. C. Vanderbergh (CVDB); 1♂: **S. Rhodesia**, Wedza, 15.XI.1929, R. & L. Boulton, Carn. Mus. acc. 8710 (CMNH); 1♀: **S. Rhodesia**, Mt. Selinda, alt. 4500ft., XII.1929, R. & L. Boulton/Carn. Mus. acc. 8710 (CMNH); 1♂: **Rhodesia**, Umtali (MNHUB); 1♂: Kilimatinde (RBINS).

Comments:

Anomala rufoides and *A. murphyi* are extremely similar to *A. ustulatipes* but can be distinguished by the following characteristics.

<i>Anomala rufoides</i>	<i>Anomala murphyi</i>	<i>Anomala ustulatifes</i>
Meso- and metatibiae reddish-brown; external margin and apex of protibiae and tarsi blackish or brownish.	Meso- and metatibiae, external margin and apex of protibiae and tarsi blackish or brownish.	Meso- and metatibiae, external margin and apex of protibiae and tarsi blackish or brownish.
Large claw of median tarsi slightly incised.	Large claw of median tarsi slightly incised.	Large claw of median tarsi bifid.
Apex of parameres spatulate in lateral view; incised after middle; laterally sinuate before apex in dorsal view (Figs 1-2).	Apex of parameres strongly sinuate; ante apical dorsally toothed in lateral view (Figs 3-4).	Apex of parameres elongate projecting antero-ventrally; not toothed dorsally before apex in lateral view (Figs 5-6).

Popillia smaragdina n. sp.
(Figs 7-8, 38)

Holotype ♂: [Coll. P. Limbourg, Congo, Kouilou, Kinanga, II.2000, Leg. B. Leru] (RBINS).

Paratype: 1 ♂: [Coll. D. Camiade, Congo, Kouilou, Malele, III.1997, Leg. B. Leru] (PCDC).

Description:

♂: length: 16.5 – 17.0 mm, breadth: 7 mm; ratio LB/IB (n = 2): 1.47 – 1.5.

Convex, slightly bent; deep green, shining with strong metallic reflection.

Clypeus subtrapezoidal with anterior margin straight, laterally arcuate and reflexed, punctate like vertex, frons less punctate.

Antennae with club as long as flagellum.

Pronotum hexagonal, broader than long; ratio LP/IP (n = 2): 0.72 – 0.74, lateral margins not sinuate, lateral angles well marked at anterior 3/5, anterior angles not surpassing posterior margin of eyes; all margins except basal one carinate, strongly and deeply punctate on sides; disc less punctured; basal margin smooth; impressed point on lateral margins.

Scutellum triangular, slightly punctate.

Elytra as long as broad, taken together LE/IE (n = 2): 1.05 – 1.06; epipleura complete; costa elevated, very slightly punctate; striae well marked, formed by a single line of deep rounded points except second one, double from base to disc; humeral calli obsolete; apical calli slightly projecting postero-ventrally; tooth at apico-internal angle.

Pygidium conical, projecting postero-ventrally and strongly, transversely striated with two small zones of white decumbent squamous setae.

Median axis mesosternal process-sternites shining and glabrous; short, erected, white, squamous setae on sides of metasternum, decumbent on posterior and median femora, and on sides of sternites, reaching or slightly surpassing posterior margin on latter; dorsum of body with few isolated and erected setae along lateral margins of pronotum and on lateral margins of pygidium from base to apex.

Abdomen concave; margin of anal plate with strong notch.

Mesosternal process long and rounded at apex, compressed laterally and reaching posterior margin of procoxa.

Protibiae thickened and bidentate; large claw of anterior tarsi bifid, broad and strongly flattened; large claw of median tarsi elongate and not bifid.

Aedeagus: parameres elongate strongly sclerotized, slightly narrowing from base to apex, strongly sinuate ventrally before apex (lateral view); apex strongly laterally sinuate with anterior margin cut straight, projecting antero-ventrally; apex of median lobe pointed, projecting between apex of parameres to apico-internal angle (dorsal view).

♀: unknown.

Etymology: *smaragdina** + suffix oides: to be like

*similar to *Popillia smaragdina* Kraatz, 1892. The species name is in reference to the similarity of the new species to *P. smaragdina*.

Popillia smaragdina Kraatz, 1892
(Figs 9-10, 39)

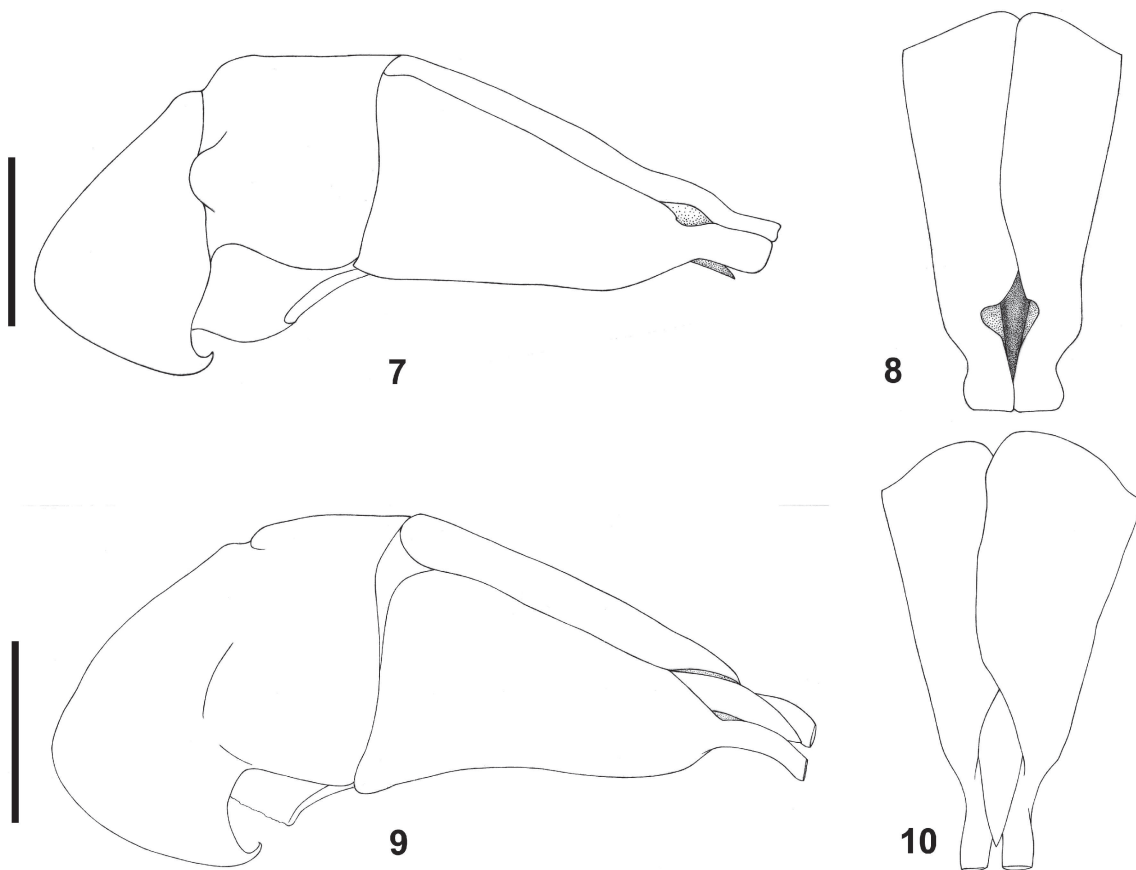
Typical material examined:

Lectotype ♂ *Popillia smaragdina* Kraatz, 1892 by present designation: [Afr. Occid., Lagos] [*smaragdina* M.] [Coll. Kraatz] [Syntypus] [Coll. DEI, Munchenberg] [Lectotype ♂ *Popillia smaragdina* Kraatz, 1892, des. Pol Limbourg 2006] (DEI).

Paralectotype ♂: [*smaragdina* Cds, Fry, Lagos, dét. Kraatz] [Afr. Occid., Lagos] [Collection candèze] [Type] [Paralectotype ♂ *Popillia smaragdina* Kraatz, 1892, det. Pol Limbourg 2006] (RBINS).

Additional material examined:

1 ♂: **Span. Guinea**, Nkollentangan, 11.VII-05.VIII., Leg. G. Tessmann S. G. (NHMB); 1 ♂: **Guinée**, Begoro (DEI); 1 ♀: Liberia, Monravia (NHMB); 2 ♂, 1 ♀: **Togo**, Amedzowe (NHMB); 1 ♂: **Togo**, Kloto forest area,



Figs 7-8. *Popillia smaragdinoidea* holotype: (7) aedeagus, lateral view; (8) parameres, dorsal view.
Figs 9-10. *Popillia smaragdina*: (9) aedeagus, lateral view; (10) parameres, dorsal view.

XII.1999, leg. G. Goergen (RBINS); 1♂: **Togo**, Kpalimé, XI.2004, Leg. P. Léonard (RBINS); 1♂: **Togo**, env. De Kpalimé, X.2000, Leg. P. Legall & Al. (PCLG); 2♂: **Togo**, Kpalimé, (PCJJ); 1♂: **Togo**, Mts. Fétiches, Tsagbanco, env. Kpalimé, III.1999, Leg. P. Legall (PCPL); 1♀: **Togo**, Rég. des Plateaux, Konda, III.2008, Leg. G. Toussah (PCSR); 1♂: **Togo**, Kpalimé, 27-30.IV.2006, Leg. N. Schiltz (RBINS); 1♂: **Togo**, Rég. des Plateaux, Badou, VIII.2008, Local collector rec. (PCSR); 1♀: **Togo**, Rég. des Plateaux, Tové-Dzighé, VII.2009, Local collector rec. (PCSR); 1♂: **Togo**, Rég. des Plateaux, Ahlon, IX.2008, Local collector rec. (RBINS); 1♀: idem (PCSR); 1♂: **Togo** (DEI); 1♂: **Ghana**, Aschanti (Ashanti) [6°55N/0°32E] (DEI); 1♀: Ogove R., W. Afr. (Good), Holland coll. (CMNH); 1♂: **Cameroun**, Lolodorf, III.1911, A. I. Good, C. M. Acc. 4366 (CMNH); 1♀: **Cameroun**, Lolodorf, 07.II.1918, J. A. Reis, Acc. 6305 (CMNH); 1♀: **Cameroun**, Lolodorf, 15.III.1919, J. A. Reis, C. M. Acc. 6256 (CMNH); 1♀: **Cameroun**, Efulen, 12.XII.1911, H. L. Weber, C. M. Acc. 4655 (CMNH); 1♂: **Cameroun**, Efulen, 21.XII.1911, H. L. Weber, C. M. Acc. 4655 (CMNH); 1♀: **Cameroun**, Edea, 20.III.1922, J. A. reis, C. M. Acc. 7090 (CMNH); 1♀: **Cameroun**, Edea, 05.VI.1922, J. A. Reis, C. M. Acc. 7089 (CMNH); 1♀: **Cameroun**, Edea, 07.VIII.1922,

C. M. Acc. 7089 (CMNH); 1♂: **Cameroun**, Edea, 26.VIII.1922, C. M. Acc. 7089 (CMNH); 1♀: **Cameroun**, Bipindi (DEI); 1♂: without locality (NHMB).

Comments:

Males of *Popillia smaragdinoidea* are extremely similar to males of *P. smaragdina*. The species can be separated based on geographic distribution (*P. smaragdinoidea* is distributed in the Republic of Congo; *P. smaragdina* is distributed from Guinea Conakry to Cameroun). Additionally, the two can be distinguished by the following characteristics.

<i>Popillia smaragdinoidea</i> ♂	<i>Popillia smaragdina</i> ♂
Length: 16.5 – 17.0 mm, breadth: 7.0 mm	Length: 11.0 – 13.0 mm, breadth: 6.5 – 7.0 mm
Aedeagus: parameres elongate, strongly sclerotized (Figs 7-8).	Aedeagus: parameres shorts, slightly sclerotized (Figs 9-10).

Adoretus francoisi n. sp.
(Figs 11-12, 40)

Holotype ♂: [Zambia, Western, 3km NW Kandunda, 1142m, 26.XI.(20)10, Leg. M. François] (RBINS).

Paratypes: 1♀: [Zambia (Western), 4km N.W. Kandunda, 1135m (S14°50'34''E24°39'00''), 03.XII.2010, Leg. M. François] (PCPL); 1♂*: [Zambia (Western), 3km N.W. Kandunda, 1120m, 08.XII.(20)09, Leg. M. François] (PCMF); 1♀: [Zambia (Western), 4km N.W. Kandunda (S14°50'34''E024°39'00''), 1135m, 27.XI.2010, Leg. M. François] (RBINS).

* Aedeagus lost.

Description:

♂: length: 10 mm, width: 4 mm; ratio LB/IB (n = 2): 1.90 – 1.95.

Laterally slightly convex, relatively elongate, dorsally flat, broader at middle of elytra; dorsum black except antennae, clypeus, lateral margin of pronotum and legs deep brown; underside deep brown except pygidium and sternites black; yellowish patch mainly along lateral margins and suture of elytra.

Head (eye to eye) broad, clypeus rounded, totally reflexed and covered with tubercles, vertex punctate like frons.

Antennae 10-segmented, with club longer than flagellum.

Pronotum rectangular, broader than long; ratio LP/IP (n = 2): 0.47; sides regularly rounded from base to apex, with all margins carinate, anterior angles projecting and reaching posterior margin of eyes; unpunctate except hairy zones; deep median fovea.

Apex of scutellum rounded, punctate.

Elytra longer than broad LE/IE; ratio (n = 2): 1.58; epipleura complete; costae slightly elevated; intervals strongly punctate; apex of elytra verniculate.

Humeral and apical calli marked.

Pygidium laterally rounded, carinate, slightly projecting postero-ventrally, and not surpassing apex of elytra.

Abdomen concave; process at base of prosternum triangular.

Protibia tridentate, pro- and mesotarsal larger claw cleft; metatarsus with larger claw half longer than outer one.

Dorsum covered with short, white, decumbent scales and lines of isolated tuft of longer white scales after middle of elytra, erected to declivity (erected tuft on top of humeral calli); apex of elytra nearly glabrous; underside covered with

short, white, decumbent scales; longs white dense erected setae on disc of pygidium; longer white erected setae on legs.

Aedeagus: narrowing from base to apex; apex interno-sinuate (dorsal view); slightly laterally sinuate.

♀: length: 10.5 mm, width: 4.5 – 5 mm

Differs from ♂ by: larger, club of antennae slightly shorter, abdomen convex.

Etymology: Dedicated to Mickaël François (Bar Sur Aube, France) who collected the specimens.

Adoretus genieri n. sp.
(Figs 13-14, 41)

Holotype ♂: [Sénégal: Ziguinchor, Boukitimgo, 18m (12°26'41''N/016°35'53''O), 4.VIII.2007, zone guinéenne, zone agricole, piège lumineux, P. Moretto & F. Génier, 2007-58] (RBINS).

Description:

♂: length: 10 mm, width: 4.5 mm; ratio LB/IB (n = 1): 1.9.

Laterally slightly convex, relatively elongate, dorsally flat, broader in the middle of elytra; dorsum brownish except antennae yellowish, clypeus and legs reddish, sternites blackish brown; little blackish patch on elytra.

Head (eye to eye) broad, clypeus rounded, margin totally reflexed; head covered with tubercles.

Antennae 10-segmented, with club longer than flagellum.

Pronotum rectangular, broader than long; ratio LP/IP (n = 1): 0.46; sides regularly rounded from base to apex, with all margins carinate, anterior angles slightly projecting and reaching posterior margin of eyes; strongly punctate; median fovea.

Apex of scutellum rounded, punctate.

Elytra longer than broad; ratio LE/IE (n = 1): 1.5; epipleura complete; costae elevated; intervals strongly punctate; apex of elytra verniculate.

Humeral and apical calli marked.

Pygidium laterally rounded, carinate, slightly projecting postero-ventrally, and not surpassing apex of elytra.

Abdomen concave; process at base of prosternum rounded.

Protibia tridentate, pro- and mesotarsal larger claw cleft; metatarsus with larger claw half longer than outer one.

Dorsum covered with short, white, decumbent scales with lines of long isolated erected white

setae on elytra; a tuft of white scales on top of humeral calli; apex of elytra nearly glabrous; underside covered with short, white, decumbent scales (longer on mesosternum); long, isolated, erected white setae on sternites; white erected setae on pygidium, longer on disc; long and short setae on legs.

Aedeagus: parameres strongly reduced from base to middle, externo-dorsally parallel to apex; apex deeply incised and laterally curved.

♀: unknown.

Etymology: Dedicated to François Génier (Gatineau, Québec, Canada) who collected the holotype.

Adoretus adustus Ohaus, 1913
(Figs 15-16, 42)

Adoretus maculatus Benderitter, 1924, **new synonymy.**

Typical material examined:

Holotype ♂ of *Adoretus adustus* Ohaus, 1913: [Museum Paris, Fort Archambault, Bahr El Azaeg, mission Chari-Tchad, Dr. J. Decorse 1904] [Typus !] [*Adoretus adustus* Ohs.] [*Ador. Maculatus* BEND., m. d. Type vergl., mz. “illegible”] [Syntypus *Adoretus adustus* Ohaus, 1913 labelled by MNHUB 2011] (MNHUB).

Holotype ♀ of *Adoretus maculatus* Benderitter, 1924: [Holotypus] [Musée du Congo, Tanganyka, coll. Benderitter] [Tanganyka] [*Adoretus maculatus* Type, E. Benderitter, dét.] [Holotype ♀ *Adoretus maculatus* Benderitter, 1924, Dét. Pol LIMBOURG 2010] (MRAC).

Additional material examined:

1♂: **Congo**, Léopoldville, VI.1945, J. M. Berteaux (MRAC); 1♂, 2 ♀: **R. D. Congo**, Lesio-Louna Réserve, 16-20.X.2009, Leg. E. Vingerhoedt (RBINS); 3 ♀: **R. D. Congo**, Lesio-Louna Réserve, XI.2009, Leg. E. Vingerhoedt (RBINS); 3 ♀: **R. D. Congo**, Iboubikro (S 3°16'/E15°28'), Lesio-Louna Réserve, 16-20.X.2009, Leg. E. Vingerhoedt & Provot (RBINS); 1 ♀: **Gabon**, Iguela, 29.X.2005 (PCPL); 1♂: “Boy” Entebbe, 4 miles of Kitahi hill, 3800-4000 ft., IV.1913, Forest within, C. A. Wiggins (UMO).

Comments:

Adoretus francoisi and *A. genieri* are extremely similar to *A. adustus* but can be distinguished by the following characteristics:

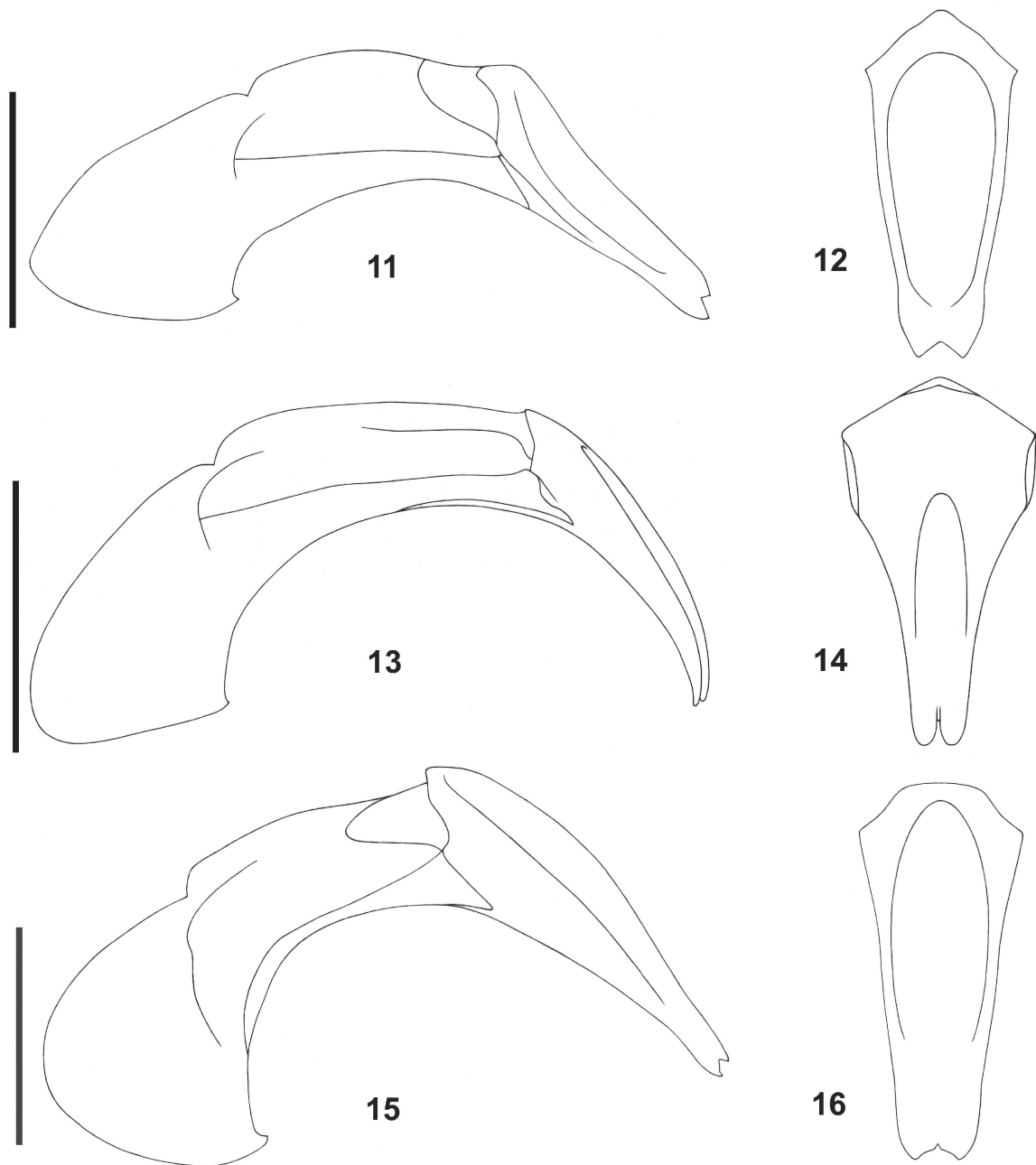
<i>Adoretus francoisi</i>	<i>Adoretus genieri</i>	<i>Adoretus adustus</i>
Dorsum black with yellowish patch on elytra.	Dorsum brownish with small blackish patch on elytra.	Dorsum brownish red with blackish patch on elytra.
Elytra with lines of isolated tufts of white scales after middle of elytra, erected to declivity with one on top of humeral calli.	Elytra covered with short, white, decumbent scales with lines of long isolated erected white setae; only one tuft of white scales on top of humeral calli.	Elytra only one erected tuft on top of humeral calli.
Pronotum with deep median fovea.	Pronotum with moderately deep median fovea.	Pronotum lacking median fovea.
Aedeagus: apex of parameres sinuate and not incised in middle (Figs 11-12).	Aedeagus: parameres strongly narrowing from base to middle part, externo-dorsally parallel until apex; apex deeply incised in dorsal view and laterally curved (Figs 13-14).	Aedeagus: apex of parameres sinuate and slightly incised in middle. (Figs 15-16).

Adoretus goergeni n. sp.
(Figs 17-18, 43)

Holotype ♂: [Nigeria, Ibadan IITA, light trap campus, VI.1999, coll. G. Goergen] [20] (RBINS).

Paratypes: 1 ♀: [Benin, Natitingou, light trap, XII.1996, coll. G. Goergen] (IITA); 1♂, 3 ♀: [Benin, forêt de Goutansoukpa, 21.X.2011, at light, Leg. Bernard Rainon] (OCIS);

1 ♀: [Nigeria, Ibadan IITA, light trap campus, 24.I.1997, coll. G. Goergen] (IITA); 2 ♀: [Nigeria, Ibadan IITA, light trap campus, X.1997, coll. G. Goergen] (IITA); 1♂: [Nigeria, Ibadan IITA, light trap campus, IV.1998, coll. G. Goergen] (IITA); 1♂, 2 ♀: [Nigeria, Ibadan IITA, light trap campus, VII.1998, coll. G. Goergen] (IITA); 3 ♀: [Nigeria, Ibadan IITA, light trap campus, X.1998, coll. G. Goergen] (IITA); 2 ♀: [Nigeria, Ibadan IITA, light trap campus, XI.1998, coll. G. Goergen] (IITA); 1♂: [Nigeria, Ibadan IITA, light trap campus, II.1999, coll. G. Goergen] (IITA); 1♂, 4 ♀: [Nigeria, Ibadan IITA, light trap campus, III.1999, coll. G. Goergen] (IITA); 1♂, 3 ♀: [Nigeria, Ibadan IITA, light trap campus, IV.1999, coll. G. Goergen] (IITA); 1 ♀: [Nigeria, Ibadan IITA, light trap campus, VI.1999, coll. G. Goergen] (IITA); 1 ♀: [Nigeria, Ibadan IITA, light trap campus, 31.VIII.1999, coll. G. Goergen] (IITA); 2♂, 2 ♀: [Nigeria, Ibadan IITA, light trap campus, IX.1999, coll. G. Goergen] (IITA); 1♂: [Nigeria, Ibadan IITA, light trap campus,



Figs 11-12. *Adoretus francoisi*: holotype: (11) aedeagus, lateral view; (12) parameres, dorsal view.

Figs 13-14. *Adoretus genieri* holotype: (13) aedeagus, lateral view; (14) parameres, dorsal view.

Figs 15-16. *Adoretus adustus*: (15) aedeagus, lateral view; (16) parameres, dorsal view.

28.IX.1999, coll. G. Goergen] (IITA); 3♀: [Nigeria, Ibadan IITA, banana trap campus, X.1999, coll. G. Goergen] (IITA); 1♂, 3♀: [Nigeria, Ibadan IITA, light trap campus, XI.1999, coll. G. Goergen] (IITA); 1♂ [Nigeria, Hone Sagbe 20km NE of Ibadan, light attracted, 12.II.1999, coll. G. Goergen] (IITA); 1♂: [Nigeria, Ibadan IITA, light trap campus, 27.IV.2000, coll. G. Goergen] (IITA); 1♂: [Nigeria centre, nr. Suleja-Abuja (9°11'05''N/7°10'00''E), 450m, 19.VII.2006, Léonard & Vingerhoedt] (PCPL); 1♀: [Coll. P. Limbourg, R.C.I., Comoe, IV.1998, Leg. P. Moretto] (PCPL).

Description:

♂: length: 8-10 mm, width: 4 – 4.5 mm; ratio LB/IB (n = 2): 1.72 – 1.74.

Laterally slightly convex, relatively elongate, dorsally flat, broader before the declivity; reddish-brown except tibiae, meso- and metafemora, tarsi and sternites black.

Head (eye to eye) broad, clypeus rounded and covered with tubercles, margin totally reflexed, vertex punctate like frons.

Antennae 10-segmented, with club longer than flagellum.

Pronotum rectangular, broader than long; ratio LP/IP (n = 2): 2.06 – 2.07; sides regularly rounded from base to apex, with all margins carinate, anterior angles projecting and reaching posterior margin of eyes; more punctate than vertex and frons.

Scutellum subtriangular, punctate.

Elytra longer than broad; ratio LE/IE (n = 2): 1.36 – 1.37; epipleura complete; costae slightly elevated; intervals strongly punctate.

Humeral and apical calli slightly marked.

Pygidium laterally rounded, carinate, slightly projecting postero-ventrally, and not surpassing apex of elytra.

Abdomen concave; short process at base of prosternum rounded.

Protibia tridentate, pro- and mesotarsal larger claw cleft; metatarsus with larger claw 3 times longer than outer one.

Upper and under sides covered with short, white, decumbent scales; lines of long, sparse, white, erected squamous setae on elytra, on lateral margins from eyes to apex of elytra and on sternites; longs white dense erected setae on disc of pygidium; rather long white erected setae on legs.

Aedeagus: parameres narrow and elongate, subparallel from base to middle part, laterally toothed, sinuate and strongly narrowed until apex in dorsal view; angulate after middle, apex slightly curved ventrally in lateral view.

♀: length: 9 – 11 mm, width: 4 – 5 mm

Differs from ♂ by: larger, club of antennae slightly shorter, abdomen convex.

Etymology: Dedicated to George Goergen (Cotonou, Republic of Benin) who collected most of the specimens.

Adoretus morettoii n. sp.

(Figs 19-20, 44)

Holotype ♂: [Burkina Faso: Komienga, Komienga, 160m (11°05'05''N/000°42'42''E), zone soudanienne sud, piège lumineux, 21.VIII.2005, F. Génier, 2005-39] [Coléoptères du Burkina Faso, BF014519] [spécimen photographié par François Génier] (RBINS).

Paratypes: 1♂: idem [Coléoptères du Burkina Faso, BF014521] (RBINS); 1♀: idem [Coléoptères du Burkina Faso, BF014524] (RBINS); 1♀: idem [Coléoptères du Burkina Faso, BF014522] (RBINS); 1♂: idem [Coléoptères du Burkina Faso, BF014521] (RBINS); 1♂: 2005-39] [Coléoptères du Burkina Faso, BF014520] (FGIC); 1♀: idem [Coléoptères du Burkina Faso, BF014520] (FGIC); 1♀: [Coléoptères du Burkina

Faso, BF014523] (FGIC); 1♀: [Coléoptères du Burkina Faso, BF014525] (FGIC); 1♀: [Burkina Faso: Tapoa, Kaabougou, 280m (11°57'22''N/022°00'40''E), zone soudanienne, savane arborée, 12.VII.2006, piège lumineux, F. & S. Génier, 2006-31] [Coléoptères du Burkina Faso BF014527] (FGIC); 6♂, 4♀: [Coll. P. Limbourg, Burkina Faso, Compienga, VIII.2005, Leg. P. Moretto] (PCPL).

Description:

♂: length: 8 – 9.5 mm, width: 4 – 4.5 mm; ratio LB/IB (n = 7): 1.76 (1.66 – 1.8).

Laterally slightly convex, relatively elongate, dorsally flat, broader before declivity; yellowish-brown except tarsi reddish.

Head (eye to eye) broad, clypeus rounded and covered with tubercles, margin totally reflexed; vertex punctate like frons.

Antennae 10-segmented, with club longer than flagellum.

Pronotum rectangular, broader than long; ratio LP/IP (n = 7): 0.47 – 0.5; sides regularly rounded from base to apex, with all margins carinate; anterior angles slightly projecting and reaching posterior margin of eyes; punctate like vertex and frons.

Apex of scutellum rounded, punctate like pronotum.

Elytra longer than broad; ratio LE/IE (n = 7): 1.31 – 1.45; epipleura complete; costae slightly elevated; intervals strongly punctate.

Humeral and apical calli slightly marked.

Pygidium laterally rounded, carinate, slightly projecting postero-ventrally, and not surpassing apex of elytra.

Abdomen concave; long process at base of prosternum rounded.

Protibia tridentate, pro- and mesotarsal larger claw cleft; metatarsus with larger claw half longer than outer one.

Upper and under sides covered with short, squamous, white, decumbent setae; lines of long, sparse, white, erected squamous setae on elytra, on lateral margins from eyes to apex of elytra and on sternites; long, white, dense erected setae on disc of pygidium and on legs.

Aedeagus: parameres narrow and elongate, reduced from base to middle part, sinuate until apex slightly laterally toothed (dorsal view); angulate after middle part, apex slightly ventrally-curved (lateral view).

♀: length: 9 – 10 mm, width: 4 – 5 mm

Differs from ♂ by: larger, club of antennae slightly shorter, abdomen convex.

Etymology: Dedicated to Philippe Moretto (Toulon, France) who collected some specimens.

Adoretus (Chaetadoretus) flavipennis

Frey, 1967
(Figs 21-22, 45)

Typical material examined:

Holotype ♂: [Région Kindia, Mt. Gangan, 750m, 3.5.(19)51] [Exped. Mus. G. Frey, Franz Guinea, 1951, W. Afr., Leg. Bechyne] [Typus] [Type *Adoretus (Chaetadoretus) flavipennis* n. sp., det. G. Frey, 1966] (NHMB).

Paratype: 1♂: [Région Kindia, Mt. Gangan, 500m, 6.5.(19)51] [Exped. Mus. G. FREY, Franz Guinea, 1951, W. Afr., Leg. Bechyne] [paratype] [Museum Frey Tutzing] [*Chaetadoretus flavipennis* n. sp., det. G. Frey, 1966] (NHMB).

Additional material examined:

3♂, 4♀: **Sénégal**, Parc Nyokolo Koba, Assirik, 21-22.VII.2007, Leg. P. Moretto (PCPL); 1♂, 2♀: **Sénégal**: Tambacounda, P.N. Niokolo-Koba, ancien poste, 144m (12°53'19''N/012°43'10''), 21.VII.2007, zone soudanienne, lisière forêt-galerie, piège lumineux, Moretto & Génier (FGIC); 1♂, 1♀: idem (RBINS); 2♂, 6♀: idem, 22.VII.2007, (FGIC); 1♂, 5♀: idem (RBINS); 2♀: idem, 23.VII.2007 (FGIC); 2♀: idem (RBINS); 1♀: **Mali**, Bamako, VII.1971, Leg. D. Seller (MRAC); 2♂: **Guinée**, Labé, VI-VII.1964, Leg. J. Dedycker (MRAC); 1♂: idem (RBINS).

Comments:

Adoretus goergeni, *A. moretto* and *A. flavipennis* are quite similar but are geographically separated. *Adoretus goergeni* is distributed in the Ivory Coast, Benin and Nigeria; *Adoretus moretto* is found in Burkina Faso, and *Adoretus flavipennis* is found in Guinea, Senegal and Mali. *Adoretus goergeni* and *A. moretto* are extremely similar to *A. flavipennis* but can be distinguished by the following characteristics:

<i>Adoretus goergeni</i>	<i>Adoretus moretto</i>	<i>Adoretus flavipennis</i>
Color reddish-brown except tibiae meso- and metafemora, tarsi and sternites black.	Color yellowish-brown except tarsi reddish.	Color yellowish-brown except tarsi reddish.
Aedeagus: parameres narrow and elongate, strongly laterally toothed at apex in dorsal view (Figs 17-18).	Aedeagus: parameres narrow and elongate, slightly laterally toothed at apex in dorsal view (Figs 19-20).	Aedeagus: parameres narrow and shorter, strongly laterally toothed to apex in dorsal view (Figs 21-22).

***Adoretus mickaeli* n. sp.**
(Figs 23-24, 46)

Holotype ♂: [Zambie central, 6km N. Chunga, 1075m, 04.XII(20)10, Leg. M. François] (RBINS).

Paratypes: 3♂, 3♀: [Zambia: Central PR., 6.5km N. Chunga, 1100m, 14°59'40''S26°0'11''E, 4.XII.2010, open central Zambezian & Miombo woodland, light trap, F. Génier, **2010-43**] (RBINS); 4♂, 3♀: idem (FGIC); 1♂: idem (PCMF).

Description:

♂: length: 10 – 11.5 mm, width: 5 – 5.5 mm; ratio LB/IB (n = 10): 1.73 (1.69 – 1.84).

Laterally slightly convex, relatively elongate, dorsally flat, broader in middle of elytra, shining blackish brown except club of antennae, pro- and mesotibiae, and femora pale brown.

Head (eye to eye) broad, clypeus rounded, margin entirely reflexed, punctate like vertex, frons less punctate.

Antennae 10-segmented, with club as long as flagellum.

Pronotum rectangular, broader than long; ratio LP/IP (n = 10): 0.46 – 0.5; sides regularly rounded from base to apex, with all margins carinate, anterior angle slightly projecting and reaching posterior margin of eyes; strongly punctate.

Apex of scutellum rounded, punctate.

Elytra longer than broad; ratio LE/IE (n = 10): 1.36 – 1.46; epipleura complete; costae slightly elevated and intervals strongly punctate.

Humeral and apical calli marked.

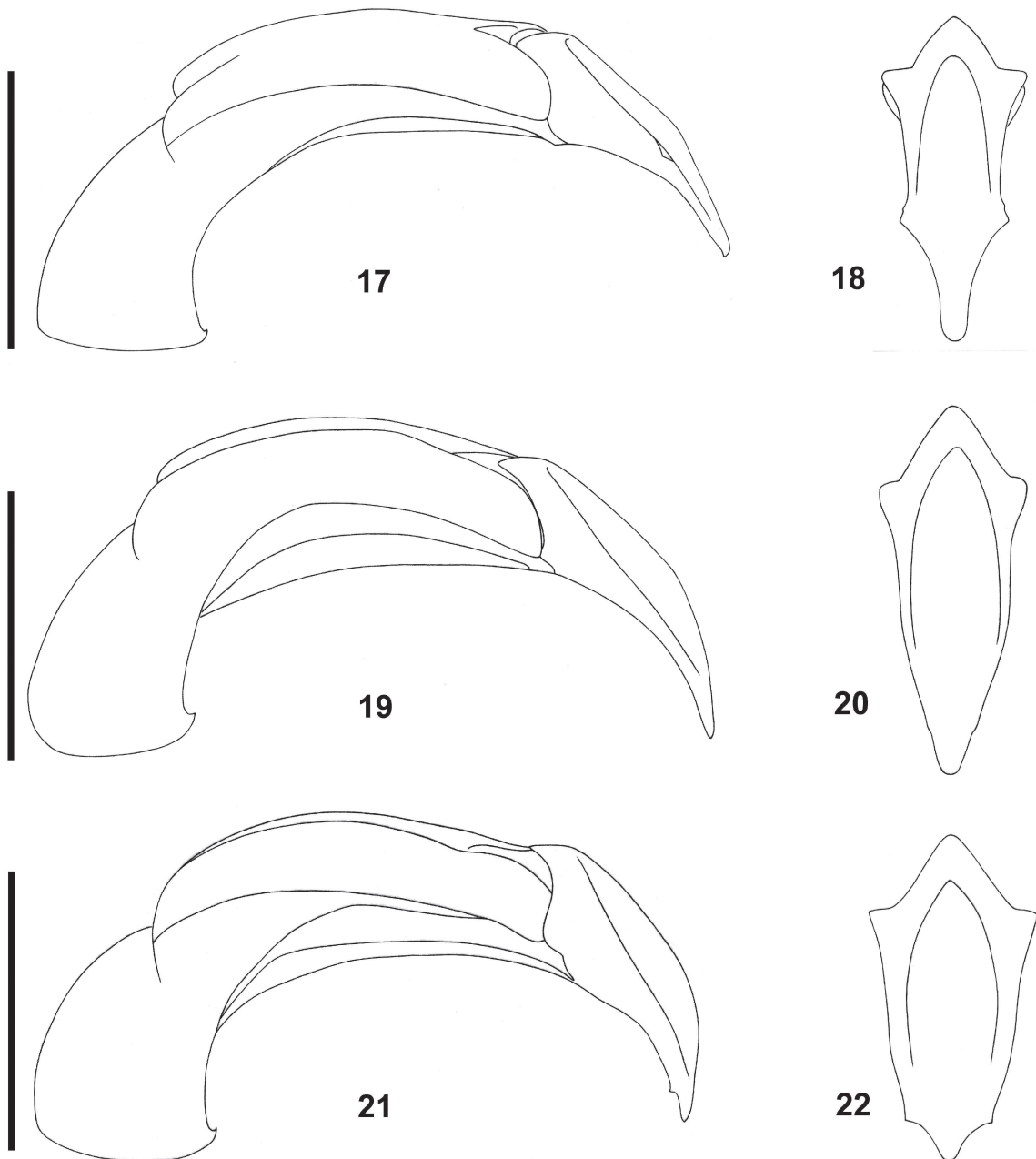
Pygidium laterally rounded, carinate and projecting postero-ventrally, slightly surpassing apex of elytra.

Abdomen concave; long, rounded process at base of prosternum.

Protibia tridentate, pro- and mesotarsal larger claw elongate and cleft; metatarsus with larger claw 1/3 longer than outer one.

Dorsum densely covered with white, short decumbent scales with small rounded desquamate zone on elytra; setae slightly longer on lateral margin of pronotum, disc desquamate (probably artifact due to friction); lateral margins, pygidium and inner margin of legs with scarce, long, white erected setae; underside densely covered with short, white, squamous, decumbent setae with a few long erected brownish setae on sternites; long, erected, squamous setae on pygidium, disc glabrous.

Aedeagus: parameres elongate and strongly reduced after base, sinuate before apex; apex



Figs 17-18. *Adoretus goergeni* holotype: (17) aedeagus, lateral view; (18) parameres, dorsal view.

Figs 19-20. *Adoretus morettoii* holotype: (19) aedeagus, lateral view; (20) parameres, dorsal view.

Figs 21-22. *Adoretus flavipennis*: (21) aedeagus, lateral view; (22) parameres, dorsal view.

sinuate in dorsal view; strongly narrowing and straight in lateral view.

♀: length: 10.5 – 12 mm, width: 5.5 – 6 mm.

Differs from ♂ by: larger, club of antennae slightly shorter, abdomen convex.

Etymology: Dedicated to Mickaël François (Bar Sur Aube, France) who collected the holotype.

Adoretus simulans Péringuey, 1902

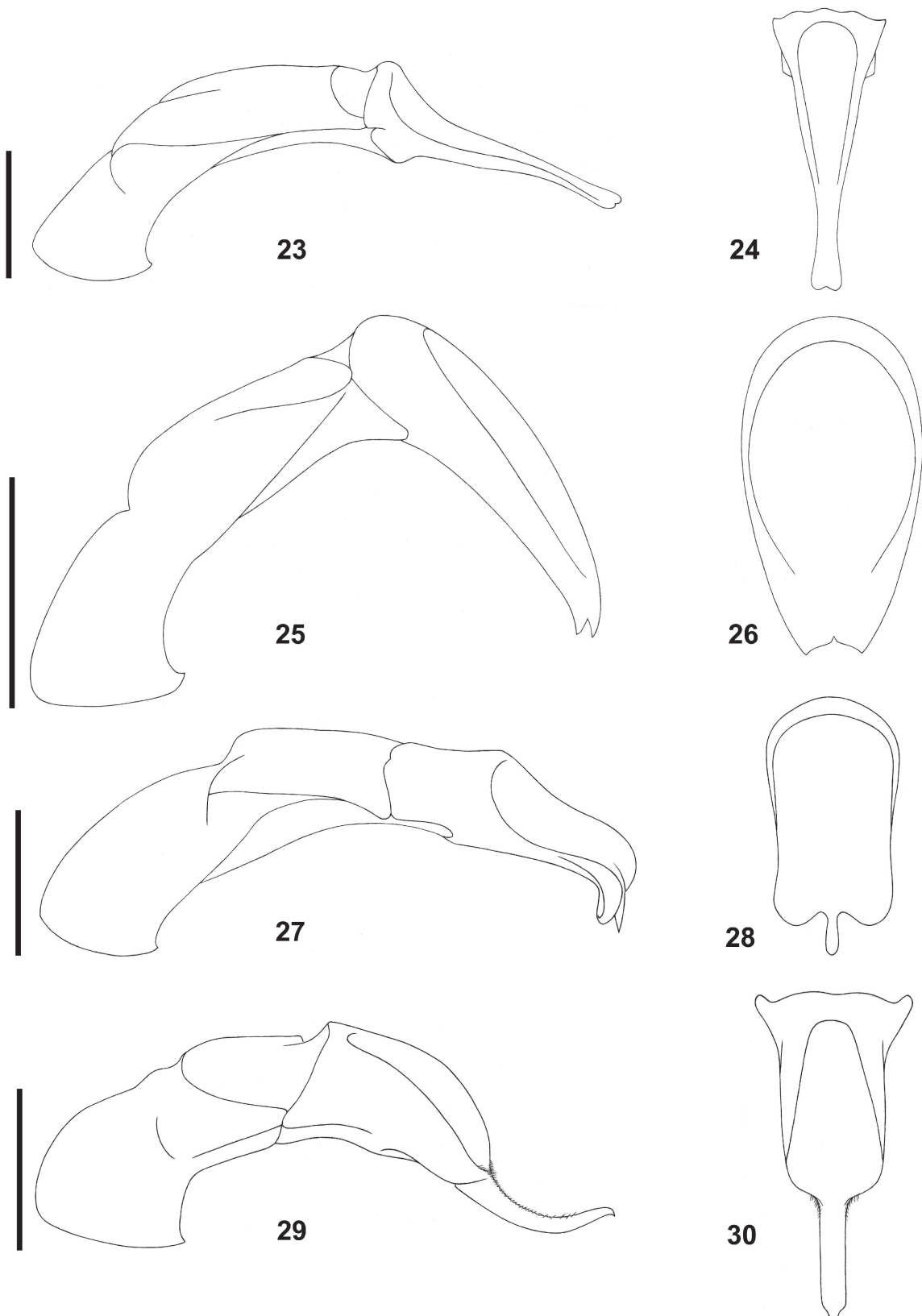
(Figs 25-26, 47)

Typical material examined:

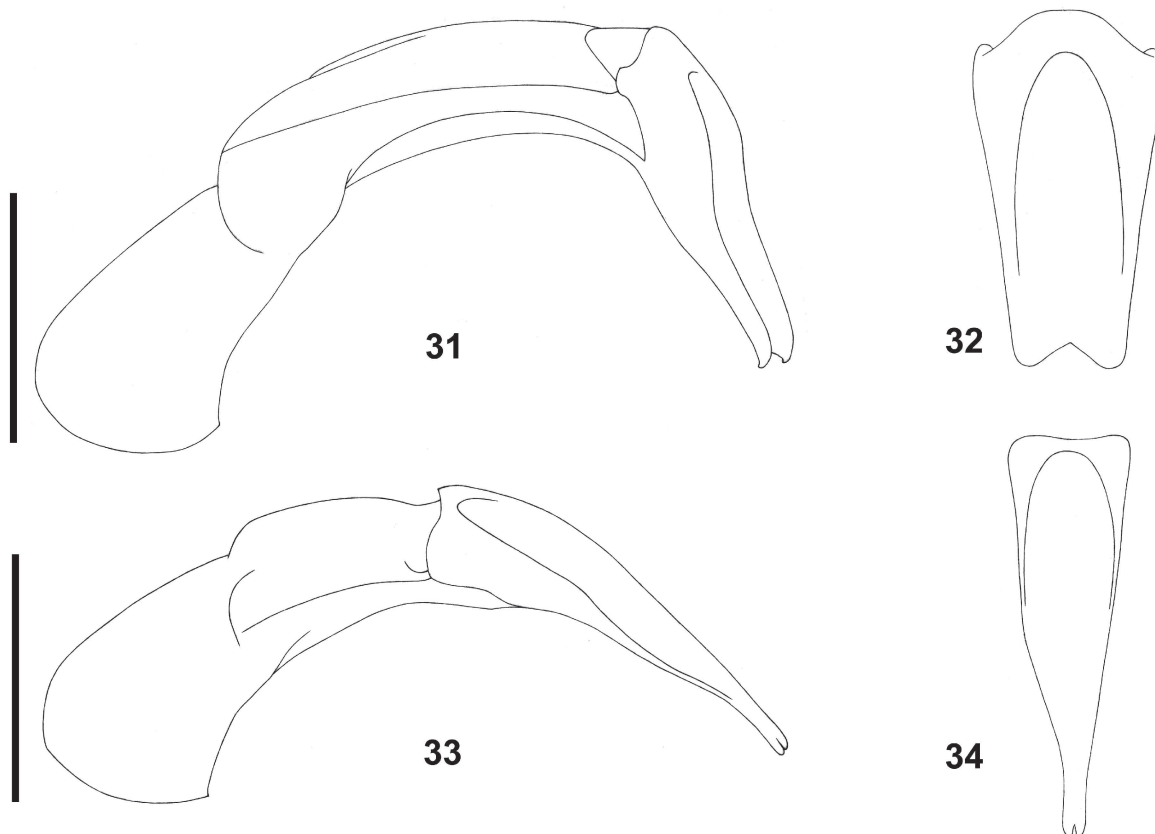
Type ♂: [*Adoretus simulans* Py. Type] [85] [Type SAM/ENT 2955] (SAMC)

Additional material examined:

1♂: **Malawi**, Mzimba Dist., Uguzi Hill, Vwaza Marsh Game Res. (11°08'S/33°06'E), 1150m, XI-XII.2005, Leg. D. Bernaud, C. Joly & J. Pierre (RBINS); 1♂: **N. W. Rhodesia**, Nama-Ula, 12.IX. 1914, H. C. Dollman (BMNH); 1♂: **N. W. Rhodesia**,



Figs 23-24. *Adoretus mickaeli* holotype: (23) aedeagus, lateral view; (24) parameres, dorsal view.
 Figs 25-26. *Adoretus simulans*: (25) aedeagus, lateral view; (26) parameres, dorsal view.
 Figs 27-28. *Adoretus weneri* holotype: (27) aedeagus, lateral view; (28) parameres, dorsal view.
 Figs 29-30. *Lepadoretus diversicolor* paralectotype: (29) aedeagus, lateral view; (30) parameres, dorsal view.



Figs 31-32. *Adoretus nasutus*: (31) aedeagus, lateral view; (32) parameres, dorsal view.
Figs 33-34. *Adoretus picinus*: (33) aedeagus, lateral view; (34) parameres, dorsal view.

Mwengwa (27.40E/13 S), 29.X.1913, H. C. Dollman (BMNH); 1♂: **N. W. Rhodesia**, Mwengwa (27.40E/13S), 30.IX.1914, H. C. Dollman (RBINS); 1♂: **Zambia** (Central), 6km N. Chunga, 1075m, 04.XII.2010, Leg. M. François (PCMF); 1♂: **Zambia**, Lusaka PR., 17km NE Rufunsa, 700m, (14°58'43''S 29°44'32''E), 22.XI.2010, degraded southern Miombo woodland, light trap, F. Génier (FGIC); 1♂: **Zambia**, Lusaka PR., 9km E Mulalika, 1100m, (15°41'10''S 28°43'52''E), 24.XI.2010, degraded southern Miombo woodland, light trap, F. Génier (RBINS).

Comments:

Adoretus mickaeli is extremely similar to *A. simulans* but can be distinguished by the following characteristics:

<i>Adoretus mickaeli</i>	<i>Adoretus simulans</i>
Body blackish brown.	Body yellowish brown.
Long rounded process at base of prosternum.	Short rounded process at base of prosternum.
Aedeagus: parameres elongate and strongly reduced after base, sinuate before apex; apex sinuate in dorsal view (Figs 23-24).	Aedeagus: parameres broad and short, laterally rounded from base to apex; apex sinuate in dorsal view (Figs 25-26).

***Adoretus weneri* n. sp.**
(Figs 27-28, 48)

Holotype ♂: [Coll. P. Limbourg, Tanzania, Usambara, Amani, IV.1995, Leg. K. Werner] [Coll. I.R.Sc.N.B., Don P. Limbourg, I. G. 31706] (RBINS).

Description:

♂: length: 16.5 mm, width: 5.5 mm; ratio LB/IB (n = 1): 1.77.

Laterally slightly convex, relatively elongate, strongly flattened, broader in middle of elytra, entirely shining pale brown except frons and two longitudinal bands on disc of pronotum brownish black; club of antennae, last segment of labial palp, apex of protibiae, apex of femora, tarsi and sternites except anal plate, black.

Head (eye to eye) broad, clypeus rounded and excavated, strongly projecting antero-ventrally, margin entirely reflexed, punctate like vertex, frons less punctate.

Antennae 10-segmented, with club as long as flagellum.

Pronotum rectangular, broader than long; ratio LP/IP (n = 1): 0.58, sides regularly rounded from

base to apex, with all margins carinate, anterior angle slightly projecting and reaching posterior margin of eyes; punctate.

Apex of scutellum rounded, punctate.

Elytra longer than broad; ratio LE/IE (n = 1): 1.33; epipleura complete; costae slightly elevated and intervals strongly punctate.

Humeral and apical calli slightly marked.

Pygidium laterally rounded, carinate and projecting postero-ventrally, not surpassing apex of elytra.

Abdomen concave; process at base of prosternum rounded.

Protibia tridentate broad and strongly flattened, pro- and mesotarsal larger claw elongate and cleft; metatarsus with larger claw one third longer than outer one.

Dorsum scarcely covered with short, white, decumbent setae; lateral margins, pygidium and legs with long, white, erected setae, legs densely setose; underside densely covered with shorter but dense, white, decumbent setae; setae erected on sternites.

Aedeagus: parameres short and strongly sinuate in lateral view; subparallel, apical internal angle sinuate and prolonged by a narrow rounded process.

♀: unknown.

Etymology: Dedicated to the late Karl Werner who collected the holotype.

Lepadoretus diversicolor Ohaus, 1914
(Figs 29-30, 49)

Typical material examined:

Lectotype ♂ of *Lepadoretus diversicolor* Ohaus, 1914 present designation: [Tanga, Afrique orientale Allde] [février] [♂] [Typus !] [*Lepadoretus diversicolor* Ohs.] [Syntypus *Lepadoretus diversicolor* Ohaus, 1914 labelled by MNHUB 2011] [Lectotype ♂ *Lepadoretus diversicolor* Ohaus, 1914 des. Pol Limbourg, 2011] (MNHUB).

2 Paralectotypes ♂ of *Lepadoretus diversicolor* Ohaus, 1914: [Tanga, Afrique orientale Allde] [février] [♂] [Cotype] [*Lepadoretus diversicolor* Ohs.] [Syntypus *Lepadoretus diversicolor* Ohaus, 1914 labelled by MNHUB 2011] [Paralectotype ♂ *Lepadoretus diversicolor* Ohaus, 1914 det. Pol Limbourg, 2011] (MNHUB).

Paralectotype ♂ of *Lepadoretus diversicolor* Ohaus, 1914: [Tanga, Afrique orientale Allde] [février] [Cotype] [mouthparts mounted on carboard] [*Lepadoretus diversicolor* Ohs.] [Syntypus *Lepadoretus diversicolor* Ohaus, 1914 labelled by MNHUB 2011] [Paralectotype

♂ *Lepadoretus diversicolor* Ohaus, 1914 det. Pol Limbourg, 2011] (MNHUB).

2 Paralectotypes ♀ of *Lepadoretus diversicolor* Ohaus, 1914: [Tanga, Afrique orientale Allde] [février] [Cotype] [♀] [*Lepadoretus diversicolor* Ohs.] [Syntypus *Lepadoretus diversicolor* Ohaus, 1914 labelled by MNHUB 2011] [Paralectotype ♀ *Lepadoretus diversicolor* Ohaus, 1914 det. Pol Limbourg, 2011] (MNHUB).

Paralectotype ♀ of *Lepadoretus diversicolor* Ohaus, 1914: [Tanga, D. O. Afrika] [février] [Cotype] [♀] [*Lepadoretus diversicolor* Ohs.] [Syntypus *Lepadoretus diversicolor* Ohaus, 1914 labelled by MNHUB 2011] [Paralectotype ♀ *Lepadoretus diversicolor* Ohaus, 1914 det. Pol Limbourg, 2011] (MNHUB).

Comments:

A. weneri is an atypic species of *Adoretini*, characterized by its strongly flattened elytra, clypeus excavated and projecting antero-ventrally, and its protibiae broad and flattened. Although aedeagus is slightly similar to that of *Lepadoretus diversicolor*. Habitus are completely different and can be easily distinguished by the following characteristics:

<i>A. weneri</i>	<i>L. diversicolor</i>
Clypeus excavated and projecting antero-ventrally.	Clypeus regularly rounded.
Protibiae broad and flattened.	Protibiae narrower.
Dorsum scarcely covered with short, white, decumbent setae, legs densely setose.	Dorsum with lines of white scales, legs with scarcely white scales.

Adoretus nasutus Fahraeus in Boheman, 1857
(Figs 31-32, 50)

Adoretus excisiceps Frey, 1973. **New synonymy.**

Typical material examined:

Lectotype ♂ of *Adoretus nasutus* present designation: [*A. nasutus*] [Type] [Typus] [Caffra-ria] [J. Wahlb] [165L4] [20658] [5648E92+] [NHRS-VKBS 000000061] [Lectotype ♂ *Adoretus nasutus* Fahraeus in Boheman, 1857 des. Pol Limbourg 2011] (NHRS).

Paralectotype ♂ of *A. nasutus*: [*A. nasutus*] [Allotypus] [Caffra-ria] [J. Wahlb] [14] [166L4] [5649E92+] [NHRS-VKBS 000000061] [Paralectotype ♂ *Adoretus nasutus* Fahraeus in Boheman, 1857 det. Pol Limbourg 2011] (NHRS).

Paralectotype ♀ of *A. nasutus*: [Allotypus] [Caffra-ria] [J. Wahlb] [♀] [168L4] [5651E92+] [NHRS-VKBS000000062] [*Adoretus nasutus* Fahr. ♀ Machatschke det. 1958] [Dieser expl. ist kein *Ad.*

pycinus daher auch kein Allotypus] [Paralectotype ♀ *Adoretus nasutus* Fahraeus in Boheman, 1857 det. Pol Limbourg 2011] (NHRS).

Holotype ♂ of *Adoretus excisiceps*: [Namaland, Holgat, 17.XI.(19)49, Leg. C. Koch] [*Adoretus excisiceps* G. Frey, 1972] [*Adoretus excisiceps* Frey, 1972 det. Pol Limbourg 2011] (NHMB).

Paratype ♂ of *A. excisiceps*: [Transv., Skukuza, Kruger Nat. Park, E. Haaf, XI.1959] [Museum Frey Tutzing] [Paratype *Adoretus excisiceps* G. Frey, 1972] (NHMB).

Additional material examined:

1♀: **Zimbabwe**, Matopos N. P. (20°33'S/28°30'E), Maleme Dam, 10.XII.1993, lux, Leg. M. Uhlig (MNHUB); 1♂: **Zimbabwe**, Matopos N. P. (20°33'S/28°30'E), 28.XI-01.XII.1993, lux, Leg. M. Uhlig (MNHUB); 1♂: **Namibia**, Etosha N.P., Halali (19°01'S/16°29'E), 16-17.XII.1993, lux/pitfall trap, Leg. M. Uhlig (MNHUB); 1♂: **Namibia**, Waterberg, 15-17.I.1993, Leg. F. Koch (MNHUB); 4♂, 5♀: **Namibia**, Waterberg Plateau Park, Camp Barnabé de la Bat (20°30'S/17°14'E), 21.XI.1993, lux, Leg. M. Uhlig (MNHUB); 1♂, 1♀: idem (RBINS); 1♀: **Namibia**, Waterberg Plateau Park (20°30'S/17°14'E), 22.XI.1993, Leg. F. Koch (MNHUB); 1♂: **Botswana**, Sebile, Bakgatla, I-II.70, at light, coll. G. J. J. (BMNH); 2♂: **Botswana**, Tlokweng, 01-07.XII.1988, coll. R. D. Ward (CMNH); 1♂: **Botswana**, Tlokweng, 08-14.XII.1988, coll. Robert Ward (CMNH); 1♀: **Botswana**, Tlokweng, 08-14.I.1989, Robert Ward (CMNH); 1♂: **Botswana**, Gabarone, 14-20.XI.1987, Robert D. Ward (CMNH); 1♂, 1♀: **Botswana**, Gabarone, 21-27.XI.1987, coll. R. D. Ward (CMNH); 12♂, 13♀: **Botswana**, Gabarone, 01-05.XII.1987, Robert D. ward (CMNH); 4♂, 4♀: idem (RBINS); 12♂, 5♀: **Botswana**, Gabarone, 06-12.XII.1987, coll. R. D. Ward (CMNH); 5♂, 2♀: idem (RBINS); 1♂: **Botswana**, Gabarone, 08-14.XII.1987, Robert D. ward (CMNH); 3♀: **Botswana**, Gabarone, 13-19.XII.1987, R. D. Ward (CMNH); 1♀: idem (RBINS); 1♀: **Botswana**, Gabarone, 15-21.II.1988, coll. R. D. Ward (CMNH); 4♀: **Botswana**, Gabarone, 08-14.XII.1988, coll. R. D. Ward (CMNH); 1♀: idem (RBINS); 4♂, 1♀: **Botswana**, Gabarone, 13-19.XII.1987, Robert D. Ward (CMNH); 2♂: idem (RBINS); 1♂, 1♀: **Botswana**, Palapye Jct., 15-23.X.1988, Leg. Pete Cresswell (CMNH); 1♀: **Botswana**, Palapye Jct., XI.1988, Leg. Pete Cresswell (CMNH); 3♂: **Botswana**, Palapye Jct., 16-18.XII.1988, Leg. Pete Cresswell (CMNH); 2♂, 4♀: **Botswana**, Palapye Jct., 04-08.XII.1989, Pete Cresswell (CMNH); 1♂, 1♀: idem (RBINS); 1♂: **Botswana**, Palapye Jct., 15-18.XII.1989, Leg. Pete Cresswell (CMNH); 1♀: **Botswana**, Palapye Jct., 24-30.XII.1989, Pete Cresswell (CMNH); 1♂: **Botswana**, Palapye Jct., 21-27.I.1990, Leg. Pete Cresswell (CMNH); 1♂: **Botswana**, Palapye Jct., 04-08.II.1990, Leg. Pete Cresswell (CMNH); 99♂, 125♀: **Botswana**, Farmer's Brigade, 5km SE Serowe, Hillside, N Slope, 07.XII.1991, mercury vapor, Per

Forchhammer (CMNH); 39♂, 43♀: idem (RBINS); 1♂: **Rep. Sudafrica**, Lowveld reg., < 300m, 10-25.IX.2008, Leg. J. Grosche & J. Rillich (PCAR); 22♂, 6♀: **Sudafrica**, KwaZulu-Natal, N'Dumu Game Res. (26°55'S/32°1'E), 30.I-03.II.1995, Leg. F. Koch (MNHUB); 7♂, 1♀: idem (RBINS); 7♂, 10♀: **Sudafrica**, KwaZulu-Natal, N'Dumu Game Res. (26°55'S/32°1'E), 31.I.1995, Leg. F. Koch (MNHUB); 4♂, 1♀: idem (RBINS); 2♀: **R. S. Afrika**, Natal: Mkuze N.P. (27°36'S/32°13'E), 02-03.II.1994, lux, Leg. M. Uhlig (MNHUB); 1♂, 2♀: **Sudafrica**, KwaZulu-Natal, Mkuze Game Res. (27°36'S/32°13'E), 29.XI.1995, Leg. F. Koch (MNHUB); 1♂: **Sudafrica**, KwaZulu-Natal, Sodwana Bay N.P. (27°37'S/32°41'E), 20.XI.1995, Leg. F. Koch (MNHUB); 2♂, 2♀: **R. S. Afrika**, Natal: Hluhluwe N. P. (28°02'S/32°05'E), 04-06.II.1994, lux, Leg. M. Uhlig (MNHUB); 1♂: **R. S. Afrika**, Natal: Hluhluwe N. P. (28°02'S/32°05'E), 05.II.1994, Leg. M. Uhlig (MNHUB); 1♂: (**R. S. Afrika**), Natal, Port Natal (MNHUB); 2♂, 1♀: **South Africa**, KwaZulu Natal, Hluhluwe (28°01'S/32°17'E), 100m, 12.XI.2007, Leg. Jiri Klir (RBINS); 1♀: **R. S. Afrika**, Transvaal: Kruger N. P., Crocodile Bridge (25°19'S/31°52'E), 10.XI.1996, Leg. M. Uhlig (MNHUB); 1♂: **R.S.A.**, OFS, Colesberg, Orange riv., 30.I.2001, Leg. M. Snizek (RBINS); 2♂: idem (PCPL); 1♂: **R.S.A.**, North West prov., Klerksdorp, Vaal riv., 20km W. of Bothaville, 31.I.2001, Leg. M. Snizek (RBINS); 2♂, 1♀: Oranje Rep. (MNHUB).

Adoretus pycinus Fahraeus in Boheman, 1857

n. status

(Figs 33-34, 51)

Typical material examined:

Holotype ♀ of *Adoretus pycinus*: [Type] [Typus] [*pycinus* Bhn. Ins Caffr.] [Caffra-ria] [J. Wahlb] [20758] [16754] [5650E92+] [NHRS-VKBS000000063] [Holotype ♀ *Adoretus pycinus* Fahraeus in Boheman, 1857 det. Pol Limbourg 2011] (NHRS).

Additional material examined:

1♂: **Katanga**: Lukaku, 06-22.XII.1930, G. F. de Witte (MNHUB); 2♀: **Dtsch. O. Afrika** (MNHUB); 1♂, 2♀: **N. Rhodesia**, Masabuku, XI.1930, on Citrus, M. Allan (MNHUB); 2♀: **N. Rhodesia**, Masabuku, 12.XI.1930, on Citrus, W.M. Allan (MNHUB); 1♂, 1♀: **Zambia**, N.E. of Centr. Prov., Nkumbi, 28.XI.2008, Leg. C. Vanderbergh (CVDB); 1♂: **Zambia**, Centr. Prov., Nkumbi, 29.XI.2008, Leg. C. Vanderbergh (RBINS); 1♂: **Zambia**, Western, 3km N.W. Kandunda, 1142m, 26.XI.(20)10, Leg. M. François (PCMF); 1♂, 1♀: **Zambie** (Western), 3km NW Kandunda, 1120m, (S14°50'19''E024°39'23''), 27.XI.2010, Leg. M. François (PCPL); 1♂: idem (PCMF); 3♂, 3♀: **Zambia**, Mfuwe, X-XII.1964, 1331-B-2/W.F.H. Ansell, B.M.1966-76 (BMNH); 1♂, 1♀: idem (RBINS); 2♂, 2♀: **Zambia**, Mfuwe, XI.1964,

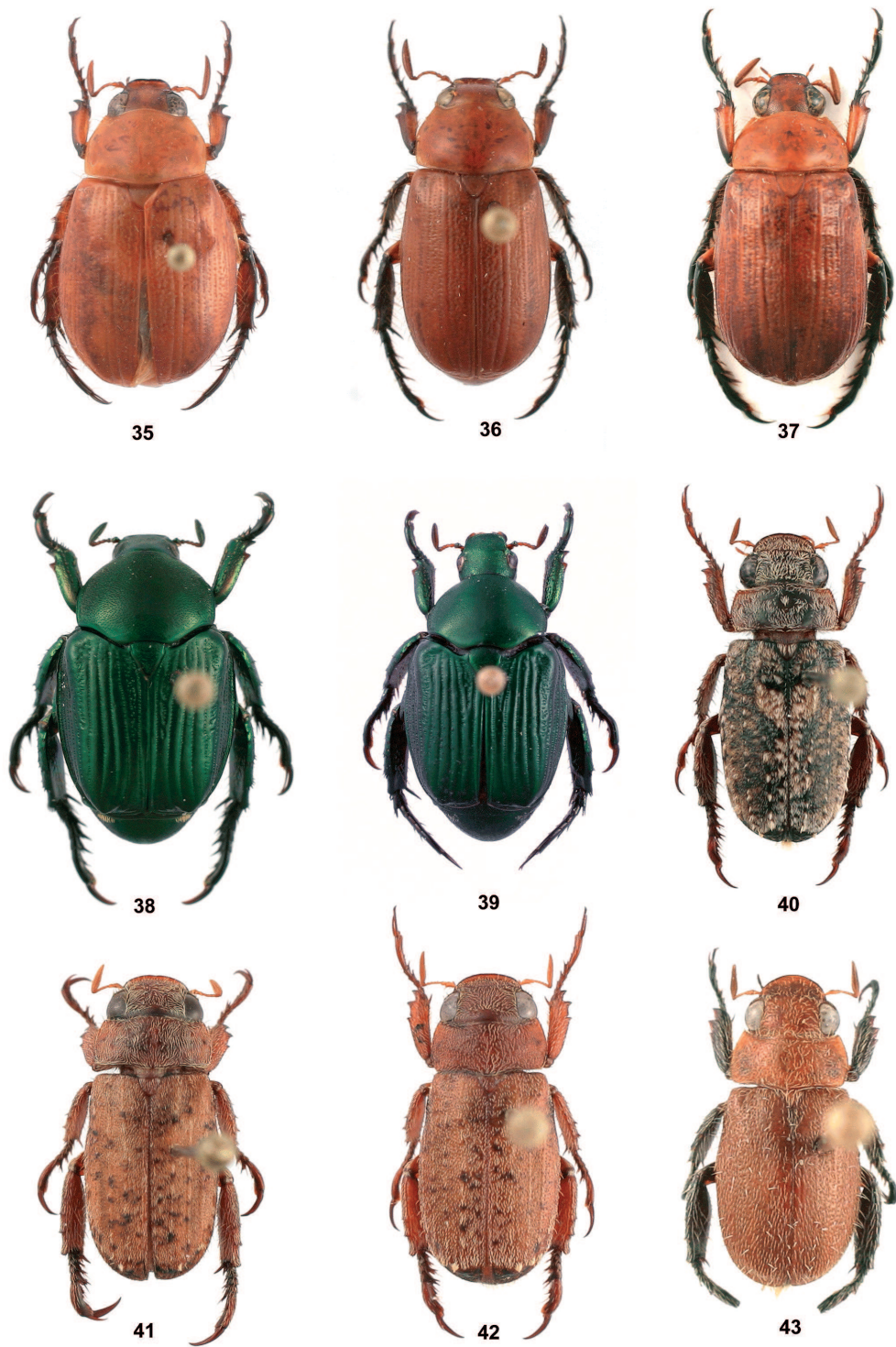


Fig 35. *Anomala rufoides* holotype: habitus, dorsal view.
 Fig 36. *Anomala murphyi* holotype: habitus, dorsal view.
 Fig 37. *Anomala ustulatipes* habitus, dorsal view.
 Fig 38. *Popillia smaragdinoidea* holotype: habitus, dorsal view.
 Fig 39. *Popillia smaragdina* habitus, dorsal view.
 Fig 40. *Adoretus francoisi* holotype: habitus, dorsal view.
 Fig 41. *Adoretus genieri* holotype: habitus, dorsal view.
 Fig 42. *Adoretus adustus* habitus, dorsal view.
 Fig 43. *Adoretus goergeni* holotype: habitus, dorsal view.

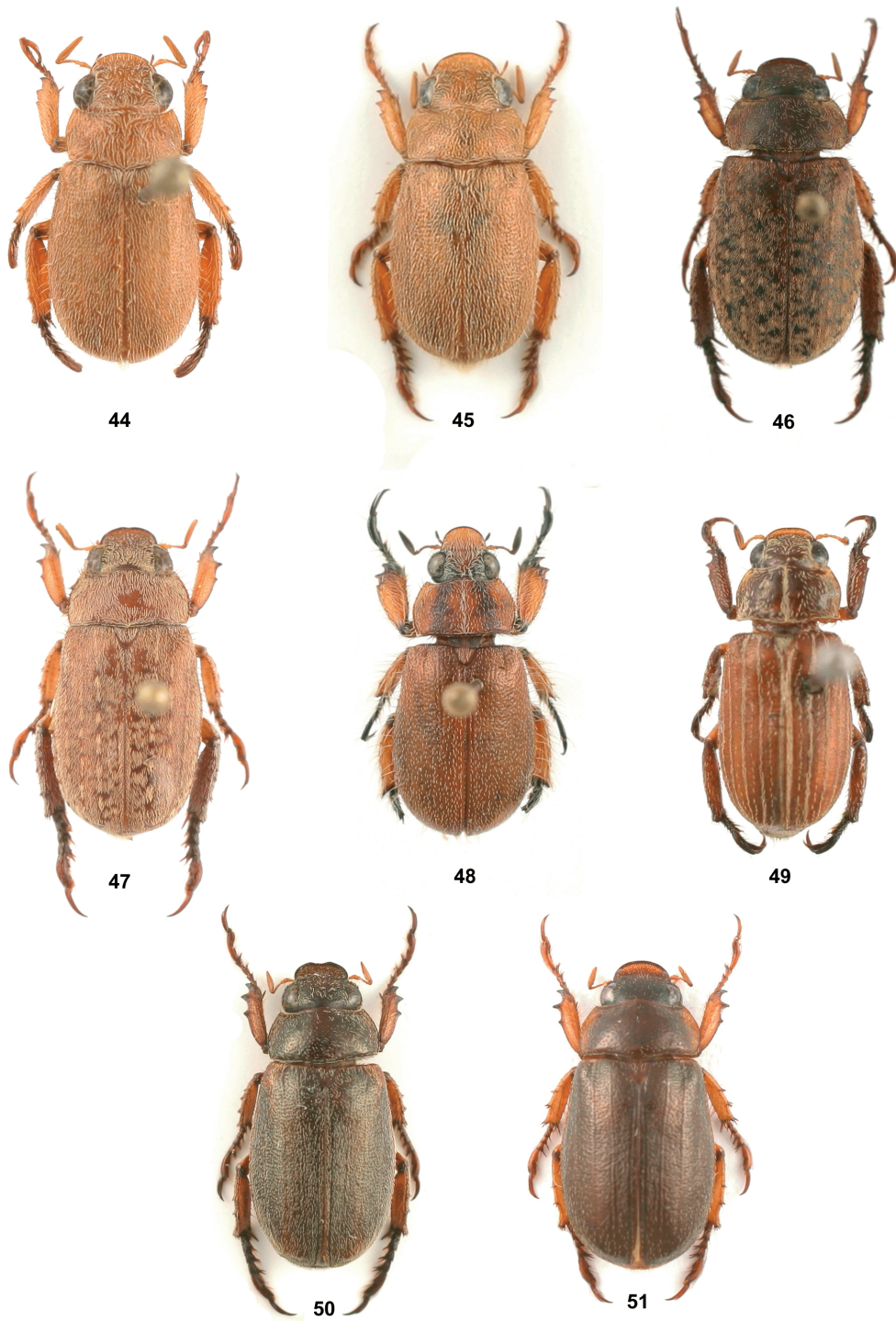


Fig 44. *Adoretus morettoii* holotype: habitus, dorsal view.
 Fig 45. *Adoretus flavipennis* habitus, dorsal view.
 Fig 46. *Adoretus mickaeli* holotype: habitus, dorsal view.
 Fig 47. *Adoretus simulans* habitus, dorsal view.
 Fig 48. *Adoretus weneri* holotype: habitus, dorsal view.
 Fig 49. *Lepadoretus diversicolor* habitus, dorsal view.
 Fig 50. *Adoretus nasutus* habitus, dorsal view.
 Fig 51. *Adoretus picinus* habitus, dorsal view.

1331-B-2/W.F.H. Ansell, B.M.1966-76 (BMNH); 1♂, 1♀: **Zimbabwe**, Victoria Falls: Zambesi NP-Camp (17°53'S/25°49'E), 11.XII.1993, lux, Leg. M. Uhlig (MNHUB); 9♂, 13♀: **Zimbabwe**, Victoria Falls: Zambesi NP-Camp (17°53'S/25°49'E), 11-12.XII.1993, lux, Leg. M. Uhlig (MNHUB); 5♂, 1♀: idem (RBINS); 3♂, 1♀: **Tanzania** (Singida), Sanza, 13-14.I.1996, Leg. G. Curletti (RBINS); 6♂: idem (MCCI); 1♀: **Malawi**, Vwaza Game Reserve, Kazuni Camp, woodland, light, I.1993, C. Dudley (RBINS); 2♀: **Malawi**, Liwonde Nat. Park, XI.1993, coll. C. O. Dudley (RBINS); 2♂, 9♀: **Namibia**, Kavango: Mahango Game Reserve: piknik site (18°13'S/21°45'E), 24.XI.1993, lux, Leg. M. Uhlig (RBINS); 7♂, 86♀: idem (MNHUB); 1♂: **Namibia**, Kavango: Mahango Game Reserve (18°14'S/21°43'E), 02-03.X.1993, Leg. F. Koch (MNHUB); 1♀: **Namibia**, Andara (18°04'S/21°30'E), 2km N.W. Popa Hills, 25..XI.1993, lux, Leg. Uhlig (MNHUB); 1♂: **Botswana**, Tlokweng, 01-07.XII.1988, coll. R. D. Ward (CMNH); 6♂, 2♀: **Botswana**, Gabarone, 01-05.XII.1987, coll. R. D. Ward (CMNH); 2♂: idem (RBINS); 1♂: **Botswana**, Gabarone, 06-12.XII.1987, coll. R. D. Ward (CMNH); 1♂: idem (RBINS); 1♂: **Botswana**, Gabarone, 13-19.XII.1987, coll. R. D. Ward (RBINS); 1♂: idem (CMNH); 1♂, 1♀: **Rep. Südafrika**, Lowveld reg., <300M, 10-25.IX.2008, Leg. J. Grosche + J. Rillich (PCAR); 1♀: **Natal**, Durban, P. Reineck (MNHUB); 2♀: **N. Transvaal**, Gravelote Dist. Letsitele Valley, 16-20.XII.1998, A. L. Capener, B.M.1959-318 (BMNH); 1♂: Buluwayo, 27.XII.1919 (MNHUB).

Comments:

PÉRINGUEY (1902) considered *A. picinus* to be a synonym of *Adoretus nasutus* Fahraeus in Boheman, 1857. He wrote: "the cotypus of *A. picinus* is undoubtedly the male of *A. nasutus*". Based on examination of the type specimens for *A. picinus* and *A. nasutus*, I restore this species status.

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